

SUBSTANTIVE POLICY STATEMENT

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STATE STATION CITS AUDIT PROCEDURE

Contact for information: Contract Compliance Unit

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Next Review: June 30, 2015

GENERAL DESCRIPTION

This procedure outlines the process for performance audits of the Cap Integrity Inspection System (CITS) in Area A and Area B. The audit is performed by using known pass/fail caps to obtain a pass/fail determination. Pursuant to Arizona Administrative Code § R18-2-1025(B)(6), each CITS test position in each inspection lane must be audited once a month in Area A and Area B.

CITS DESCRIPTION

CITS is the functional gas cap test, which meets the requirements described in AAC R18-2-1006(E)(6)(a) and the April 2000 version of the U.S. EPA IM240 & Evap Technical Guidance (EPA420-R-00-007), will be performed on MY1971 and newer vehicles originally manufactured with evaporative emissions control systems in Areas A and B. It uses the precision flow transducer, flow control solenoids, safety pressure relief, and necessary pneumatic and electrical connections enclosed within the lane cabinetry. During a vehicle inspection, the inspector removes the gas cap from the vehicle and connects the cap to the CITS using one of a series of available adapters. The system uses the "flow rate" method, as described in section 85.2205(e)(3) of U.S. EPA's IM240 and Evap guidance, to check the integrity of the gas cap. Under this test method, the gas cap is subjected to a pressure of approximately 30" H₂O and cannot exceed a leak rate of 60 cubic centimeters per minute (cc/min). The pressurization sequence and flow rate monitoring are fully automated and controlled by the lane computer. The CITS equipment design and operation meet federal guidelines for the gas cap flow rate test, as contained in sections 85.2205(e), 85.2222(d) and 85.2227(d) of the IM240 and Evap guidance; they are also compliant with the provisions of AAC R18-2-1006(E)(6)(a). Separate CITS gas cap testing capability and adapter sets are installed in each lane position.

Pressure Decay Test Standard. For pressure decay methods using a 1 liter head space and the June 1996 IM240 technical guidance, the fuel cap shall fail the pressure test if it loses more than 6 inches of water column (WC) pressure over a period of 10 seconds from a starting pressure of 28±1 inch WC.

60 cc/min Flow Standard. The leak rate may be determined by pressure loss measurement, direct flow measurement, or flow comparison methods and shall be compared to a pass/fail flow rate standard of 60 cubic centimeters per minute of air at 30 inches of water column. The flow rate methods shall be

referenced to standard conditions of 70°F and 1 atm. If the leak rate exceeds 60 cc/min at a pressure of 30 inches of water column, the CITS position shall fail the test.

Accuracy. Pressure decay, direct flow measurement, or flow comparison methods shall be accurate to ± 3 cc/min at the 60 cc/min flow standard.

Reference Caps and Orifices. NIST traceable reference passing fuel caps of nominal 52-56 cc/min, and NIST traceable reference failing fuel caps of nominal 64-68 cc/min shall be used for verification tests.

Reference Caps - Flow Checks. Flow bench verification of the reference gas caps and flow orifices shall be conducted before monthly usage, or as recommended by the cap tester manufacturer or as suggested by analysis of quality control data. The bench flow verification results shall be traceable to NIST.

Monthly Audit Checks. The CITS position shall be verified by testing and correctly identifying passing and failing reference gas caps or flow orifices as specified in §85.2227(d)(2)(v). Reference caps shall be stored in a dirt and dust free manner to prevent clogging and changes in flow rates. Reference caps shall be stored at the same temperature as the cap tester to provide accurate flow reference. GDAT shall ensure the CITS position shall display readings in voltage (1.3 volts $\pm .05$) and cc/min at a pressure of 30 inches of water column for reference during audit.

AUDIT GUIDELINES AND RESTRICTIONS

Audit Frequency, Times, and Station Traffic - All positions at stations W23;W26;M01; M02; M03; M04; M06; M07; M08; M09; M10; M12; M13 M14; M15, M16 and M17 must be audited by the end of the month. All Area B stations and W32 will be audited monthly. All audits will be performed during station operating hours. State Inspectors shall visit stations during periods of off-peak traffic. If the station has a closed test lane and or the queue lane traffic does not exceed three vehicles per lane, the audit can be initiated. Gordon-Darby Arizona Testing (GDAT) has agreed to accommodate the audits by moving traffic from open to closed lanes.

Station Assignments – State Inspectors, and when available, State Inspectors shall be responsible for performing an audit of waiver stations W23 (10210 N. 23rd Ave., Phoenix) and W26 (4949 E. Madison St., Phoenix) before auditing a test station. State Inspectors, and when available, State Inspectors shall be responsible for performing all audits

Audit Caps –GDAT shall supply pass/fail caps. Caps shall be checked at GDAT prior to audits.

Audit Failures, Re-Audits, and Disputed Failures - In the event of a failing audit, a follow-up audit must be immediately performed. Prior to performing the follow-up audit State Inspectors shall verify the audit equipment is correctly assembled, installed and adjusted. If a second failure is recorded, the State Inspector shall complete a Notice of State Station Equipment Failure form and **cease auditing at stations with three lanes. At stations with four or more lanes the State Inspector may continue to audit lanes until a second failure is recorded.** If the second lane fails the State Inspector shall complete a Notice of State Station Equipment Failure form and cease auditing at that station. GDAT personnel should not perform adjustments or repairs to the lane equipment or audit equipment during the audit. If adjustments or repairs are performed, cease auditing and immediately contact the Contract Compliance Manager. If GDAT personnel request a re-audit, State Inspectors may do so only after GDAT personnel have performed repairs and completed their portion of the equipment failure form. When performing a re-audit, State Inspectors shall perform the audit and in case of failure perform a

follow-up audit and complete an equipment failure form if necessary. **All re-audits are recorded on the failure report and noted in the comment section of the audit form that it is a re-audit.** Under no circumstances shall more than one re-audit be performed. Audit results that are disputed will be mediated by performing the audit in front of the Contract Compliance Manager and GDAT Technical Services Manager.

EQUIPMENT and FORMS REQUIRED

- Gordon Darby supplied (green) pass cap
- Gordon Darby supplied (red) fail cap
- Handheld Manometer
- CITS audit report
- Notice of State Station Equipment Failure Report - Blank Carbonless Paper Form

PREPARATION

Forms - Prepare a CITS Audit Report for each inspection lane by completing the following: Station; Lane; Position; Address and State Inspector.

AUDIT PROCEDURES

Arrival at the Station - Upon arrival at the station State Inspectors shall determine if station traffic will permit an audit using the guidelines specified in Audit Frequency, Times, and Station Traffic. If station traffic permits, the State Inspector shall meet with the station manager and advise that an audit is in process.

Performing Data Entry - State Inspectors enter data and receive messages from GDAT's computer system. Various functions are invoked via menu selections made by depressing a single letter key on the keyboard. The key is identified on the screen by an underlined letter. The system also uses screen prompts, or written instructions, to guide the operator through the process. When a lane position has been made available, ensure that the "Main Menu" screen is displayed. To log on, press the "M (*Managers Menu*)" key and the system will ask you to scan RFID, press "F8" and enter your user code and press "F2". On Managers Menu screen, press the "T" key to turn the RFI off and press "F2" (*when off, TOGGLE RFI ON will be displayed*) then press "ESC" to escape. From the Main Menu screen, press the "M" key (*Managers Menu*). When the "INSPECTOR LOGIN" screen appears, enter your user code and press (F2) and the *Managers Menu* screen will appear. To exit and log-off, press "ESC" key and you get to the MAIN MENU screen and you will be logged off.

CITS Audit - Closing the test lane is not necessary for the audit. If the lane is open, between vehicles ask the lane inspector to "log off" temporarily, perform the audit and move to the next position in the lane until all lane positions are audited. Use the following procedure:

Enter Date and Time of the audit on the audit report.

1. Log-on to the computer at position 1.
2. One after the other, depress the "@" key (**CITS SERVICE**), the "F7" key (**CITS CONFIG. SCREEN**) and verify voltage is at 1.3 or above and at 60 cc/min at a pressure of 30 inches of water column and press "F11" for print screen.

3. Press the “F6” key (**CITS TEST**).
4. Attach the (red) fail cap to the CITS hose and press “F2” (**OK**) to start audit. Result should be (**GAS CAP FAILED**). Ensure a loss of no less than 64-68 cc/min is displayed and press “F11” for print screen and mark the form appropriately; Pass or Fail. Depress the “ESC” (**ESCAPE**) key to exit back to the (**CITS TEST**) screen.
5. Depress the “F6” (**CITS TEST**) key.
6. Attach the (green)pass cap to the CITS hose and press “F2” (**OK**) to start audit. Result should be (**GAS CAP PASSED**). Ensure a loss of no more than 52-56 cc/min is displayed and press “F11” for print screen. Mark the form appropriately; Pass or fail.
7. Depress the “ESC” key twice, and log-off.
8. Move to the next lane and repeat step 1 until all lane positions have been audited. If the audit fails, repeat steps 2 thru 8. If a second failure is noted, complete a Notice of State Station Equipment Failure. Before leaving the station, discuss audit results with the station manager and obtain their signature in the “Received by” space. There is no other failure form or corrective action to be taken by the State Inspector.

Equipment Failure Re-Audits - Pursuant to Arizona Administrative Code R18-2-1025, the State Inspectors shall provide a copy of the CITS’s failing results to the station manager. Additionally, the contractor shall immediately notify the Department in writing of the CITS return to service and the contractor’s audit of the equipment shall be provided to the Department within seven calendar days after the equipment’s return to service. Upon receipt of the contractor’s audit a state inspector shall schedule a visit to the station and perform an audit. The Contract Compliance supervisor shall report the audit(s) in the Contract Compliance monthly report.

Reporting - State Inspectors shall report any failures to the Contract Compliance Supervisor daily and the audit results weekly to the Contract Compliance Supervisor.